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ABSTRACT

Each week of the fall and the spring, 20 to 24 high school students volunteer as Junior Counselors at the Outdoor School which each year provides approximately 7000 Multnomah County, Oregon, sixth grade students with an opportunity to live and study together at one of 5 leased resident camp sites. Recommended by their high school counselors, Junior Counselors are selected by the Outdoor School staff on the basis of their enthusiasm, responsibility, enjoyment of the outdoors, and desire and ability to work with younger students and staff. They must have passing grades and be able to miss a week of school. After a 2-day training workshop, each Junior Counselor is specifically responsible for the health and welfare of a cabin group of 8-10 sixth grade students during their week-long stay. The Junior Counselor also assists as instructor in one of four resource areas (soil, water, plants, animals). The handbook details: Outdoor School policies; insurance considerations; administrative procedure; equipment list; transportation arrangements; daily schedule; and student behavior, standards, and work duties. For each resource area there is a glossary of important words and terms that the Junior Counselor is expected to know and use at the School. (SB)

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THE
JUNIOR COUNSELOR
HANDBOOK
FOR

MULTNOMAH COUNTY OUTDOOR SCHOOL

Developed By:

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Multnomah Outdoor Education.....A Service Of:
220 SE 102nd Avenue Multnomah County
Portland, OR 97216 Education Service District
Thos. J. Sommerville, Superintendent

Cover Photo By: Daniel Stanton

ADDRESSES OF OUTDOOR SCHOOL SITES

Sports Acres
Elsie Route, Box 600
Seaside, OR 97138

Nate Creek
Route #2, Box 358
Molalla, OR 97038

Adams
Route #2, Box 358
Molalla, OR 97038

Collins
Route #2, Box 577
Gresham, OR 97030

Howard
Route #1, Box 808
Corbett, OR 97019

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WHAT IS OUTDOOR SCHOOL?

Outdoor School is a residential program for all sixth grade students enrolled in Multnomah County (approximately 7,000 annually). The Multnomah County Education Service District provides this service for the 12 school districts in the county.

Outdoor School operates 5 sites during the fall and spring of each school year. They are all located within approximately a one hour drive from Portland and a map of their locations is included. Outdoor School sites are owned by church groups or youth organizations and are leased by Multnomah Outdoor Education for the period of Outdoor School only. Each site has four sixth grade classes each week who spend from 4:00 p.m. Sunday through 12:30 p.m. Friday living and studying together.

- 1 Site Supervisor
- 4 Resource Specialists
- 6 Senior Counselors
- 20-24 Junior Counselors
- 4 Sixth Grade Classes
- 4 Teachers Of The Four Classes
- 1 Registered Nurse
- 1 Head Cook
- 5 Kitchen Helpers

STAFF PERSONNEL

Following is a brief description of staff personnel:

- SITE SUPERVISOR:** Has total responsibility for operation of the site and makes the final decision in areas of conflict.
- RESOURCE SPECIALISTS:** Cooperatively responsible with teachers for implementing the curriculum pertaining to their area of natural resource study.
- SENIOR COUNSELORS:** Responsible for working with Junior Counselors to insure a successful experience for them and their cabin groups. Responsible to see that all scheduled program activities are carried out. Responsible for assisting a Resource Specialist in natural resource study.
- CLASSROOM TEACHERS:** Ultimately responsible for the conduct and discipline of the youngsters in their class. Cooperate and participate in all phases of the program.
- REGISTERED NURSE:** Responsible for health and welfare of each student and staff member. Responsible for checking site facilities and staff practices for high health standards.
- HEAD COOK AND KITCHEN HELPERS:** Responsible for supplying a balanced and adequate diet for all persons attending Outdoor School.

DESCRIPTION OF JUNIOR COUNSELOR POSITION (High School Student - Volunteer)

QUALIFICATIONS

1. Ability to communicate with sixth graders, classroom teachers, Outdoor School personnel, and peer group.
2. Exhibits enthusiasm, maturity, responsibility, flexibility, initiative, and leadership.
3. Enjoys the out-of-doors.
4. Recommendation of the high school counselor.
5. Passing grades, good attendance record, completion of all homework.
6. Desire to work with young people.

RESPONSIBLE TO:

1. Senior Counselors directly and ultimately to the Site Supervisor.

SPECIFIC RESPONSIBILITIES:

1. Assume responsibility for the health and welfare of a cabin group.
2. Assist as an instructor for one of the resource areas.
3. Aid the sixth grader in all phases of the Outdoor School program and personal relationships.
4. Maintain open communication channels with Outdoor School personnel and classroom teachers.
5. Seek assistance when needed.

EVALUATION:

1. At conclusion of week of counseling by Senior Counselors on cabin performance, and
2. By Resource Specialist on teaching performance.

SELECTION OF JUNIOR COUNSELORS

At each high school a staff member(s) has been designated as Outdoor School's primary contact person. Information from the Multnomah Outdoor Education office is sent through this contact who may in turn pass it on to other faculty members. Initial selection of Junior Counselors is the responsibility of the high school contact(s). The degree to which you are screened by the high school personnel will vary from school to school, however, passing grades, completion of all homework, and a good attendance record are prerequisites for all students wishing to become Junior Counselors.

If you are interested in becoming a Junior Counselor it is important that you consider carefully the following criteria for yourself:

1. Do you feel you would like to work with sixth grade youngsters?
2. Can you afford to be away from high school for one week?
3. Is your personality such that you are a pleasant person to be around?
4. Can you assume a position of leadership with young people?
5. Are you the type of person to which parents would entrust the care of their children? (Do you have high personal standards?)
6. Do you enjoy the out-of-doors?
7. Do you have an interest in science?

A positive answer to the above criteria should ensure a unique and highly gratifying experience for you, one which cannot be duplicated during your school career.

The final selection of Junior Counselors is made by permanent staff at the Outdoor School site which you will attend during your final two-day workshop. If, in the judgment of the permanent staff, it would be in the best interest of Outdoor School that you not counsel you will be so notified by personal letter. At the conclusion of the two-day workshop all accepted Junior Counselors names will be sent to the appropriate high school where the high school counselor will have the final option on approval. In the event you are not approved by your high school you will be notified.

POLICIES PERTAINING TO JUNIOR COUNSELOR STAFF MEMBERS

Transportation to and from the Outdoor School site is provided by Multnomah Outdoor Education and you are requested to use this transportation. (See bus schedule on page 3)

You are expected to remain on the Outdoor School site during your week of attendance as a Junior Counselor. Any exception to this must be cleared with the Site Supervisor.

If you are allowed to smoke in your own home or in public with your parent's knowledge, you may smoke at the Outdoor School. You are, however, expected to follow the same rules as apply for any adult staff or teacher. Smoking is allowed only in designated areas or in the dining hall after taps. Smoking is never done in front of students, on the trails, in the cabins, or on the study plots.

No pets allowed on the Outdoor School site.

Liquor and "dope" are absolutely forbidden on-site.

Close human relationships, with an overt display of affection, are discouraged during Outdoor School.

Eleven p.m. should be the close of the day for all Junior Counselors. (Midnight on Thursday evening.)

CLASSROOM VISITATIONS

You may wish to visit a sixth grade classroom at the completion of your counseling experience. Some conflicts have arisen in the past when visitations were made without prior clearance of the classroom teacher.

As a matter of courtesy to the class and teacher and well ahead of any contemplated visit you must make a personal contact with the teacher for approval. This can generally be accomplished with a phone call to the school.

Unscheduled visits are disruptive since the teacher schedules various activities for students well in advance. Incidents where Junior Counselors have shown up during a testing session or film have caused some hard feelings toward Outdoor School, which could easily have been avoided with some prior planning.

Please try to limit your visits to the classroom or to school activities. Visits to children in their homes oftentimes causes problems and are not encouraged by Outdoor School. Junior Counselors may visit children in their homes only with parental invitation or prior parental permission. Please do not make "surprise" home visits. Junior Counselors must not transport children in their cars or in their family car.....at any time!!! All transportation to and from gatherings is to be provided by parents or school. Your help and cooperation in this matter is greatly appreciated.

SITE VISITATION

After you have counseled for one week at Outdoor School, you might enjoy visiting the site for an evening. Because each week at Outdoor School is a separate week, and very special for those people on-site at that time, we ask that you abide by some visitation rules:

1. Limit your visit to the hours of 6:00 p.m. to 10:00 p.m. and plan to leave the site at 10:00 p.m.
2. Call the site ahead of time to arrange for the visit, bearing in mind that the site is limited to a maximum of 10 Junior Counselors visiting at one time.
3. If your plans change, call the site back and inform them that you will not be visiting.
4. Remember that Junior Counselors can visit on Tuesday and Wednesday nights only.
5. Please abide by all Outdoor School rules by being attentive and quiet at all activities in which you participate -- remember that there are other Junior Counselors there who need your support as much as you needed support when you were counseling.
6. Bear in mind that it is a regular Outdoor School week and that the staff is glad to see you, but they don't have much spare time to sit and visit.
7. The number of visits each session is at the discretion of the Site Supervisor.

PERMISSION FORMS FOR JUNIOR COUNSELORS

Junior Counselors are required to have a completed permission form on file prior to counseling. This permission form, consisting of 2 copies, must be properly filled out with all the required signatures. One copy is to be on file with Outdoor School personnel and the second copy is to be on file at the student's high school, prior to the assigned week of counseling.

NO JUNIOR COUNSELOR WILL BE ALLOWED TO COUNSEL WITHOUT HAVING FOLLOWED PROPER PROCEDURE REGARDING PERMISSION FORMS.

Permission forms are only available through the faculty contact in your high school. Specific details concerning permission forms will be explained to you at the Junior Counselor Workshop which is held prior to the Outdoor School session.

INSURANCE

The Outdoor School has taken out blanket accident insurance for every Junior Counselor attending the Outdoor School. The insurance benefit limits consist of

Accidental Death \$2500, Accidental Dismemberment - subject to maximum of \$5000, Medical Injury expense \$2500 and Specified Disease \$2500. Expenses for eye glasses or prescription for eye glasses and dental x-rays are excluded.

Blanket liability insurance has been purchased to cover all Outdoor School staff members, including participating Junior Counselors. The limit of this policy is \$500,000. It is in force all the time the staff member is at the Outdoor School or going directly to or from the Outdoor School.

State Industrial Accident Insurance and Workmen's Compensation Insurance apply only to Senior Counselors and other paid staff members while at the Outdoor School.

CLOTHING AND EQUIPMENT LIST FOR JUNIOR COUNSELORS

BEDDING

Sleeping bag or three-blanket bedroll and sheet
Extra blanket
Pillow and case

CLOTHING

Pajamas
Slippers
Shower thongs
Sturdy shoes
Sturdy boots (waterproof)
Socks
Shirts
Jeans or heavy trousers
Warm jacket
Sweater
Underwear
Gloves
Rain coat, hat, boots

OPTIONAL ITEMS

Musical instrument
Camera and film

TOILET KIT

Bath towels
Hand towels
Wash cloth
Soap and container
Comb/brush
Toothbrush and toothpaste
Lip salve
Facial tissue
Razor

GENERAL EQUIPMENT AND USEFUL ITEMS

Flashlight
Letter writing materials & stamps
Small container of soil from your home (for soil ceremony)
Watch
Alarm clock

The above is only a suggested list for Junior Counselors. Feel free to make any adjustments to the list. Students will not be bringing radios, comics, card games, candy, gum, or money. It would be appreciated if you would follow same standard.

Thank you!

BUSING SCHEDULE FOR PICK-UP AND DELIVERY OF OUTDOOR SCHOOL JUNIOR COUNSELORS

This bus schedule has been devised to provide more efficient and safer transportation of Junior Counselors to and from the Outdoor School. It will require Junior Counselors to arrange transportation for themselves and their duffel to the nearest high school listed below, on the Sunday they are assigned. Buses will leave the schools PROMPTLY at the time designated. If one is missed the bus may be caught at the next in line or at the Multnomah County Education Service District parking lot, 220 SE 102nd Avenue. As a last resort call 255-1841.

At the Multnomah County Education Service District parking lot, on Sunday, buses will be designated with Outdoor School site names and everyone will reshuffle themselves and their gear to the proper bus. Junior Counselors will arrive at their site between 1:00 p.m. and 1:30 p.m.

On Friday the schedule will work in reverse with buses leaving the Outdoor School sites soon after 2:30 p.m. and arriving at the Education Service District parking lot at 3:30 p.m. and departing for the listed high schools at 4:00 p.m. The buses will arrive at the high schools in REVERSE order of the Sunday pickup, beginning at 4:15 p.m.

BUSING SCHEDULE FOR PICK-UP OF JUNIOR COUNSELORS

A-RUN

LEAVES PROMPTLY AT:

Lake Oswego Sr. High School, 2501 SW Country Club Rd.	10:45 a.m.
Jackson High School, 10625 SW 35th Ave.	11:00 a.m.
Wilson High School, 1151 SW Vermont	11:15 a.m.
Washington High School, 531 SE 14th Ave.	11:30 a.m.
Franklin High School, 5405 SE Woodward	11:45 a.m.
Multnomah County Education Service District, 220 SE 102nd Ave.	12:00 Noon

Arrival at Outdoor School site between 1:00 p.m. and 1:30 p.m.

B-RUN

LEAVES PROMPTLY AT:

Lincoln High School, 1600 SW Salmon	10:45 a.m.
Roosevelt High School, 6941 N Central St.	11:10 a.m.
Grant High School, 2245 NE 36th Ave.	11:30 a.m.
Madison High School, 2735 NE 82nd Ave.	11:45 a.m.
Multnomah County Education Service District, 220 SE 102nd Ave.	12:00 Noon

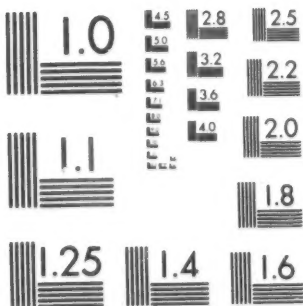
Arrival at Outdoor School site between 1:00 p.m. and 1:30 p.m.

C-RUN

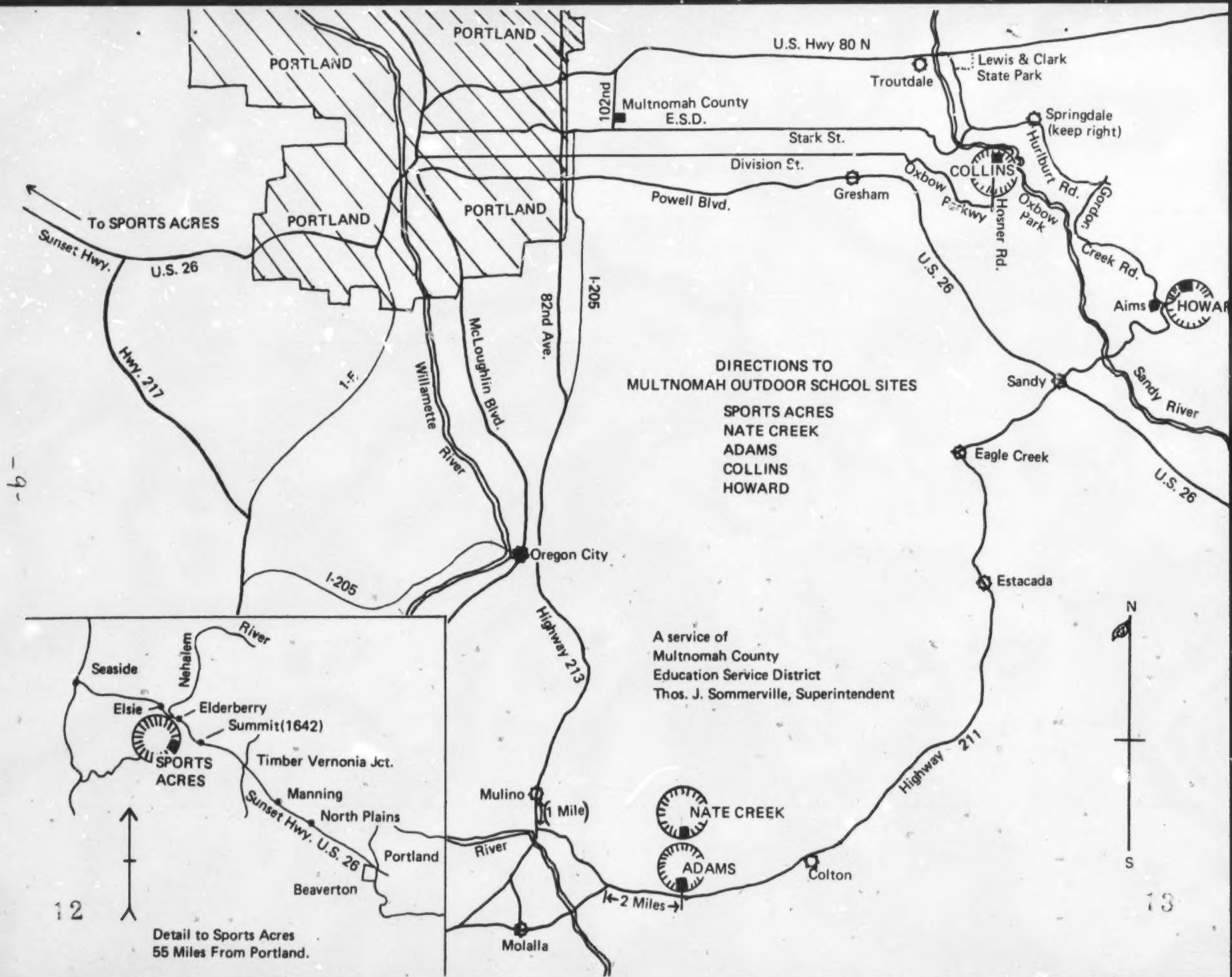
LEAVES PROMPTLY AT:

Corbett High School, Corbett	10:30 a.m.
Gresham High School, 1300 N Main, Gresham	11:00 a.m.
Centennial High School, 3505 SE 182nd Ave., Gresham	11:15 a.m.
Reynolds High School, 1200 NE 201st Ave., Troutdale	11:30 a.m.
Parkrose High School, 11717 NE Shaver	11:45 a.m.
Multnomah County Education Service District, 220 SE 102nd Ave.	12:00 Noon

Arrival at Outdoor School site between 1:00 p.m. and 1:30 p.m.



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



ALL DIRECTIONS ARE FROM THE E.S.D. BUILDING (220 SE 102ND AVENUE)

SPORTS ACRES, (approximately 65 miles) Elsie Route, Box 600, Seaside, OR 97138

Proceed west on Sunset Highway (U.S. #26) from downtown Portland for about 55 miles. Landmarks enroute are the town of Manning, Timber-Vernonia Junction, summit of the coast range (1642 ft.), and Elderberry Inn. Just $\frac{1}{4}$ mile past Elderberry Inn a bridge crosses the Nehalem River. Turn left (south) immediately past the bridge on Luukinen Road and proceed for $\frac{1}{4}$ mile. Entrance to Sports Acres is on your right.

ADAMS, (approximately 32 miles) Route #2, Box 358, Molalla, OR 97038

Proceed south on 82nd Avenue. Exit at the OREGON CITY-GLADSTONE off-ramp. Turn left at the signal light and follow the signs directing you to Molalla (Highway 213). Following Highway 213 you will come to the town of Mulino. Continue past the town of Mulino for approximately 1 mile. Turn left at the sign which indicates UNION MILLS, MEADOWBROOK AND COLTON (Highway 211). THIS TURN IS JUST BEFORE YOU CROSS THE BRIDGE OVER THE MOLALLA RIVER. Approximately 3 miles later you will come to an intersection with stop signs. After stopping you must continue straight ahead. Two miles beyond the stop signs you will see the entrance to the Adams site on your left.

NATE CREEK, (approximately 32 miles) Route #2, Box 358, Molalla, OR 97038

Follow the same directions as you would to go to the Adams site. Nate Creek is the north, back property of the Adams site.

COLLINS, (approximately 16 miles) Route #2, Box 577, Gresham, OR 97030

Travel east on Division Street. East of Gresham, Division Street will become Oxbow Parkway. Stay on Oxbow Parkway until you come to Hosner Road. Turn left on Hosner Road and proceed for approximately $1\frac{1}{2}$ miles. The entrance to the Collins site will be on your left. The sign showing the entrance is on the right hand side of the road. Signs which will aid you in going to Collins will be to note the signs directing you to Oxbow Park. The Collins site is adjacent to Oxbow Park.

HOWARD, (approximately 25 miles) Route #1, Box 808, Corbett, OR 97019

Proceed east on Stark Street. Stark Street ends when you cross the bridge over the Sandy River (approximately $12\frac{1}{2}$ miles). After crossing the bridge turn right and you will come to the town of Springdale (approximately 2 miles). Swing right at the signal light in Springdale. THIS SIGNAL MAY NOT BE OPERATIONAL. After making this right you will come to a fork in the road (approximately 300 feet). Take the right fork (Hurlburt Road). Proceed on Hurlburt Road to a STOP sign (approximately 2 miles). Turn right at the stop sign. You are now on Gordon Creek Road. Continue on Gordon Creek Road for approximately 9 miles to the town (??) of Aims. KEEP A SHARP LOOKOUT FOR DIRECTION SIGNS IN AIMS. You will note that the main road makes a very sharp turn to the right and a secondary road goes to your left. Turn left on the secondary road (there is a road sign here indicating Howard). After traveling approximately 1 mile you will need to turn right to enter the Howard site. This is marked with a white road sign.

Daily Schedule

7:00 A.M.	"Wake-Up"
7:20	Chopsticks, Flag & Weather Crews Report
7:40	Morning Colors
7:50	Breakfast
8:30	Daily Duties
8:50	Cabin Clean-Up
9:15	Cabin Inspectors Report - Others Assemble For Resource Study
9:30	Begin Field Study
11:55	Chopsticks Report To Dining Hall
12:00 Noon	End Field Study
12:15 P.M.	Noon Meal
1:00	Quiet Time And Showers
1:55	Assemble For Field Study
2:00	Begin Field Study
4:15	End Field Study
4:20	Cabin Activities With Junior Counselors
4:40	Assemble For Recreation
5:40	End Recreation
5:45	Chopsticks, Flag & Weather Crews Report
6:05	Evening Colors
6:15	Evening Meal
7:00	Resource Review/Teacher-Class Meeting/Resource Preparation/Junior Counselor-Senior Counselor Meeting
8:00	End Meetings (Students Return To Cabins)
8:15	Begin Campfire
9:15	End Campfire (Return To Cabins - Prepare For Bed)
9:40	"Lights Out"
9:45	"End Of Day"
	At conclusion of campfire the Site Supervisor meets with Resource Specialists, Senior Counselors and teachers.

Table Manners

TERMS FOR TABLE MANNERS

BREAKING UP A FRIENDSHIP:	Not passing the salt and pepper together.
MABLE, MABLE, STRONG AND ABLE GET YOUR ELBOWS OFF THE TABLE:	Elbows on table.
FLAG POLE:	Leaving spoon in cereal or dessert bowl.
TRAFFIC JAM:	Not passing things one at a time or so that they meet going opposite directions.
FINGER PAINTING:	Thumbs in bowl or plate while passing.
TABLE DECORATION:	Napkin on table and not on lap.
FLOOR DECORATION:	Napkin on floor.
FULL HOUSE:	Stuffing mouth full of food & talking with food in mouth.
GANG PLANK:	Resting knife on table and edge of plate.
MUDDY FEET:	Placing bowl on used plate.
TIME CHECK:	Silverware not placed at 10 to 4 on plate when meal is finished.
RECKLESS DRIVER:	Not passing food using opposite hand.

When passing food, you should pass to the right the first time around. Once an item has gone around the table it can then be passed either right or left, depending on which is most convenient. Pass food by reaching across your body with opposite hand, take plate, switch hands in front, and pass on with opposite hand.

All meals served at the Outdoor School are prepared by a school dietician and special effort is made to see that they are well balanced. It is hoped that you will eat everything on your plate. Even though there may be some things you do not like, you are to take three bites of everything on your plate.

Don't forget PLEASE and THANK YOU when asking for articles at the table.

Duty Stations

You are responsible to see that you report on time and to the proper place for duties.

When your living group has the duty of:

HOST	Report in front of dining hall at mealtime
HOSTESS	Report in front of dining hall at mealtime
JOHNNY JUMP-UP	Report in front of dining hall at mealtime
CHOPSTICKS	Report to Dining Hall Steward in dining hall at scheduled times before each meal
KITCHEN POLICE	Remain after the meal and report to Dining Hall Steward
FLAG	Report to counselor in charge at the flag pole at scheduled times
WEATHER	Report to counselor in charge at the Weather Station at scheduled times
WOODCHUCK	Report to counselor in charge in front of dining hall after breakfast
ROUSTABOUT	Report to counselor in charge in front of dining hall after breakfast
CABIN INSPECTION	Report to counselor in charge at Outdoor School office

Rules For The Outdoor School

Some behavior guidelines are necessary at the Outdoor School. They are simple, common-sense rules that students should be made to realize are good for everyone. These guidelines are not meant to restrict people from having a pleasurable experience but to insure that everyone can enjoy the Outdoor School equally. Junior Counselors are considered Outdoor School staff members and responsible leaders.

1. Students must not leave the Outdoor School grounds unless accompanied by a staff member. The boundaries are explained at the opening assembly.
2. For the sake of safety and conservation, students must never be allowed to wade in creeks or ponds unless under the supervision of a staff member and for an educational purpose.
3. Experience has shown that whenever youngsters throw rocks, fir cones, etc., someone often ends up on the receiving end. No throwing!
4. Accidents at the Outdoor School are most often caused by running. Students unused to slippery trails, exposed roots and rocks, and other obstacles, simply give the nurse unnecessary business. No running!
5. There is never a need for students to have matches. Pick up all matches and lighters from students on Sunday or whenever detected.
6. Students must not leave their cabin from TAPS at 9:30 p.m. until REVEILLE at 7:00 a.m. (Lavatory use excepted.) Sixth graders need their rest and it is a staff responsibility to see that they get it.
7. Students are to be in their cabins during the quiet time, daily, after the noon meal. Supervised shower time is the exception.
8. Under no circumstances should students remove, injure or destroy living plants or animals. Collecting of scientific specimens under the guidance of a staff member is permitted. Conservation, anti-litter and anti-vandalism are our theme.
9. Should a student become sick or injured they must be made to report to the nurse immediately, day or night. Persons seriously injured or ill should not be moved or made to walk to the nurse's dispensary. The staff member involved must see that the nurse is immediately summoned and guided to the injured. Only the nurse dispenses medications.
10. Everyone is expected to comply with the Outdoor School schedule.

We must all remember that we are guests at the Outdoor School site and conduct ourselves accordingly. Littering the grounds, destroying property, or acting in an obnoxious manner are not the acts of good guests.

IN ALL CASES WHERE SOME MODIFICATION OF BEHAVIOR IS REQUIRED, LET COMMON SENSE BE YOUR GUIDE.

TERMS USED IN ANIMAL STUDY

This list is not intended to be used as a dictionary, but rather as an aid to improving your vocabulary before attending Outdoor School. The terms are not in alphabetical order, but are in related groups; each group small enough to be easily learned. In the definitions, the words in CAPITAL LETTERS are important things to remember.

VERTEBRATES: Animals with BACKBONES.
INVERTEBRATES: Animals WITHOUT BACKBONES. Some have exoskeletons.
EXOSKELETON: The OUTSIDE SKELETON of animals such as insects and crayfish.

VERTEBRATES

MAMMAL: Warm-blooded vertebrate, HAIR, FEEDS YOUNG ON MILK.
BIRD: Warm-blooded vertebrate, FEATHERS, eggs with limey shells.
REPTILE: Cold-blooded vertebrate, DRY, SCALY SKIN, (snake, lizard, turtle).
AMPHIBIAN: Cold-blooded vertebrate, SKIN SMOOTH AND SLIPPERY (frog, salamander).

INVERTEBRATES WITH EXOSKELETONS

INSECT: THREE PART BODY, SIX LEGS, adults usually have wings.
SPIDER: TWO PART BODY, EIGHT LEGS, no wings.
CENTIPEDE: Exoskeleton in many sections, each section having 2 legs (1 pair).
MILLEPEDE: Exoskeleton in many sections, each section having 4 legs (2 pair).

INVERTEBRATES WITHOUT EXOSKELETONS

SNAIL & SLUG: NO SKELETON, SLIMY, ONE LONG, FLAT FOOT, with or without shell.
EARTHWORM: NO SKELETON, SLIMY, long segmented body, no legs.

CARNIVORES: Animals that eat meat.
HERBIVORES: Animals that eat plants.
OMNIVORES: Animals that eat both meat and plants.
PREDATORS: Animals that kill other animals for food.
SCAVENGERS: Animals that eat dead and decaying animal and plant life.
PARASITES: Animals or plants that obtain food from living organisms.

DIURNAL: Most active during daylight hours.
NOCTURNAL: Most active at night.

HIBERNATE: To spend the winter in a deep sleep usually because of cold.
ESTIVATE: To spend the summer in a deep sleep usually because of drouth.

AQUATIC: Living or growing in water; applied to either plants or animals.

TERRESTRIAL: Living or growing on land; either plants or animals.

NATIVE: An animal or plant naturally found in this area.

EXOTIC: An animal or plant NOT NATIVE to this area (imported).

ENVIRONMENT: All those factors which make up the surroundings of any living thing.

HABITAT: The environment in which an animal can exist, providing all of the things that the animal must have - WATER, FOOD, SHELTER.

CARRYING CAPACITY: The greatest number of animals that can live in an area.

LIMITING FACTOR: Whichever of the three essentials, WATER, FOOD, or SHELTER is used up first, thus limiting the carrying capacity.

G L O S S A R Y O F P L A N T W O R D S

- ALGAE:** Most primitive form of plant from which all other groups of plants have probably been derived. They vary in size from very small land forms to giant seaweed as long as 150 feet. This is the green material on the side of a fish bowl.
- BERRY:** Any small juicy and stoneless fruit.
- BUSH:** Any low shrub with many branches.
- FERN:** A plant with feather-like leaves which reproduces by spores.
- FLOWER:** The part of a plant which contains the organs of reproduction from which seeds develop.
- FUNGUS:** Form of plant life which has no chlorophyll so must obtain its food from other living things.
- LICHEN:** A plant which consists of two, an algae and a fungus.
- MOSS:** A primitive plant form that reproduces by spores instead of seeds.
- TREE:** A plant that usually grows tall and has a trunk and branches.
- ALTERNATE:** Leaf pattern - leaves growing first on one side of the stem and then on the other, but not across from one another.
- BROAD LEAF:** A plant having flat, broad leaves, instead of needles like on pines, firs, etc.
- COMPOUND LEAF:** Leaf consisting of several leaflets attached to a single leaf stem.
- CONIFER:** A tree which usually is evergreen and has needle shaped leaves. It is a cone bearing tree.
- DECIDUOUS:** A plant whose leaves drop off in the fall of the year.
- EVERGREEN:** A plant which stays green all year.
- INTOLERANT:** A sun loving plant which does poorly in the shade.
- OPPOSITE:** Leaf pattern - leaves growing across from one another on a stem.
- PALMATE:** A leaf arrangement in which several leaflets start from a single point and form a shape like a hand with fingers.
- PINNATE:** Leaf having leaflets arranged opposite each other on two sides of the stem - like a feather.
- SIMPLE LEAF:** A leaf which isn't divided.
- TEETH:** Projections on the edges of leaves which look like teeth.
- WHORLS:** A circular arrangement of limbs or leaves on a stem or trunk at one point.
- BARK:** Protective covering on the outside of a tree or shrub.
- CAMBIUM LAYER:** Layer of growing tissue between the bark and the sapwood.
- CHLOROPHYLL:** The green coloring matter of plants necessary for the plant to make it's own food. (Photosynthesis)
- CONE:** The seed bearing body of such trees as Douglas Fir, Hemlock, Pines, etc.
- LOBED:** Leaf having deep indentations between the major veins.

GROWTH RINGS:	The amount of wood a tree grows in one year.
HEARTWOOD:	The inner core of a tree trunk made of nonliving cells which is usually darker than sapwood - gives the tree strength.
LEAF:	A green, usually flat part of a plant, that grows from the stem or roots and is the place where most photosynthesis takes place.
NEEDLE:	A thin, pointed leaf, like that of the Douglas Fir.
PETAL:	One of the divisions of a flower which is usually brightly colored.
ROOTS:	Part of a plant which usually grows in the ground. It anchors and feeds the plant.
SAP:	The liquid inside the trunk of a tree.
SAPWOOD:	Soft living part of trunk which contains tubes which carry water and minerals from roots to leaves.
SEED:	The reproductive part of a flowering plant which contains the egg cell.
SPORES:	One-celled seeds found in plants, like ferns.
STEM:	The stalk which supports a leaf, flower, or fruit.
TRUNK:	The main stem of a tree.
CARBON DIOXIDE:	Gas which we breathe out and the plant takes in during photosynthesis (daytime).
OXYGEN:	Colorless gas that is given off by plants during photosynthesis (daytime).
PHOTOSYNTHESIS:	The process by which plants used water, CO ₂ and sunlight to make food.
BOARD FOOT:	Unit of measuring lumber - 12" x 12" x 1".
CIRCUMFERENCE:	Measurement around a circle.
D.B.H.	Diameter of tree at breast height (4½ feet).
DIAMETER:	Length of a line from one side of a circle to the other through the center.
COMMUNITY:	A group of plants growing in the same area and in the same conditions.
DUFF:	Decayed organic matter on top of the soil.
NURSE LOG:	Decaying log which provides a seed bed for other plants.
PLANT SUCCESSION:	One plant community following another.

G L O S S A R Y O F W A T E R W O R D S

- AMPHIBIAN:** Means "living in two places". These animals hatch from eggs which have been deposited in ponds or streams. They live in the water like fish when they are young. Gradually they grow lungs and legs, breathe air and live on land.
- ANADROMOUS FISH:** Those fish which spend the greater part of their lives in salt water, but migrate into fresh water streams for reproduction.
- AQUATIC:** Living or growing in water.
- AQUATIC ROOTS:** Roots that are in the water. They are generally small and lack root hairs.
- ARTESIAN WELL:** A deep well in which water rises by subsurface (under the ground) pressure.
- CAPILLARY WATER:** Water held in the fine spaces around soil particles. This water can be used by plants.
- CONDENSATION:** The process by which water vapor changes to liquid water, usually minute water droplets forming clouds.
- CUBIC FEET PER SECOND:** A measurement we use to find out how much water is flowing past a certain point every second. A water flow of one cubic foot per second would be about 449 gallons every minute.
- CUBIC FOOT OF WATER:** The water in a container that is one foot wide, one foot deep and one foot long. One cubic foot of water is about 7½ gallons and weighs 62.4 pounds.
- DISSOLVED OXYGEN:** The useable oxygen dissolved in the water. It is measured in "parts per million" and is essential to aquatic life (P.P.M.).
- EROSION:** The washing away or wearing away of the land surface. Flowing water often makes gullies in the soil.
- EVAPORATION:** The changing of water into vapor - from a liquid to a gas. Action of the sun warming land and water surfaces.
- GRAVITATIONAL WATER:** Water that moves downward into the zone of ground water. Water stored in underground streams, caverns, and the air spaces in the soil.
- GROUND WATER:** Water that collects in the ground, concentrating at and below the water table.
- HARD WATER:** Water containing mineral salts which combine with soap and prevent suds from forming.

HYDROSCOPIC WATER:	Water which forms a thin film around soil particles. This water cannot be used by plants.
pH:	A measure of the concentration of hydrogen ions. More simply, it tells us whether the water is acid or alkaline.
POLLUTION:	Caused by dumping wastes into our water. These wastes may cause water to be unuseable.
PRECIPITATION:	Moisture falling from clouds or separating from the air such as rain, snow, sleet, hail, frost, fog, or dew.
RESERVOIR:	A place where water is collected and stored for use, usually related to a man-made structure such as a pond or lake behind a dam.
RIFFLE:	A shallow area in a stream bottom that causes the water flowing over it to become broken and uneven in flow.
RUNOFF:	Excess water which the ground cannot absorb and which runs off the surface of the ground to enter the drainage system, streams, and rivers.
SEDIMENT:	Any material carried in suspension in water which will settle out as the speed of the water flow lessens.
SOFT WATER:	Water relatively free from minerals.
SPRING:	Formed by ground water coming to the surface on top of an impervious layer.
SURFACE WATER:	Runoff and also where the water table emerges at the surface of the ground in lakes and streams.
SWAMP:	An area of low ground, saturated with water over a long period.
TOXIC:	Poisonous. In water it is usually associated with a waste which kills fish and other aquatic life.
TRANSPIRATION:	The process by which plants release water into the air from their leaves and other surfaces. This loss is by evaporation.
WASTES:	Sewage, water from industrial processes, return irrigation water, or any other water which has been used by man and changed in the process.
WATERSHED:	Any area of land which drains into a particular stream or other body of water - a drainage basin.
WATERTABLE:	The height at which free water occurs in the soil profile, and as surface water in streams and lakes.

G L O S S A R Y O F S O I L W O R D S

PRESERVATION:	Not using our natural resources, but leaving them as they are.
CONSERVATION:	Wise use of our natural resources so that we save some for future use.
ECOLOGY:	The study of how plants and animals live and work together in their surroundings.
ORGANIC:	Anything that is living (alive), or has been living (dead).
INORGANIC:	Anything that has never been living.
DECOMPOSE:	To rot, or to decay.
SOIL:	A mixture of decayed organic material and decomposed rock.
DUFF:	Top layer of soil, the rotting vegetable material that helps to make new soil.
TOPSOIL:	Second layer of soil. Best for plant growth.
SUBSOIL:	Third layer of soil -- gives moisture and minerals to plants.
PARENT MATERIAL:	Bottom layer of soil -- the partly decomposed rocks or sand that help to make new soil.
BEDROCK:	The solid rock -- under the four layers of soil.
SOIL PROFILE:	A side view of the layers of soil.
SAND:	Soil that feels gritty, and does not hold together.
SILT:	Smooth soil; settles to the bottom of water.
CLAY:	Soil that is smooth and sticky.
pH:	A test that tells what plants you can grow by showing how acid (sour) or alkaline (sweet) the soil is. The soil that tastes sour to plants measures between 1 and 7 on pH scale and is on the acid side.
ALKALINE:	Soil that tastes sweet to plants - measures between 7 and 14 on pH scale.
WEATHERING:	The breaking down of rocks and minerals.
EROSION:	The wearing away of soil by water or wind.
SHEET EROSION:	Washes away the layers of soil.

RILL EROSION: Washes away the soil by water running downhill and making many little streams.

GULLY EROSION: Washes away the soil by water running downhill and making deep, wide ditches.

BANK EROSION: Erosion is caused by streams washing away the soil from stream banks.

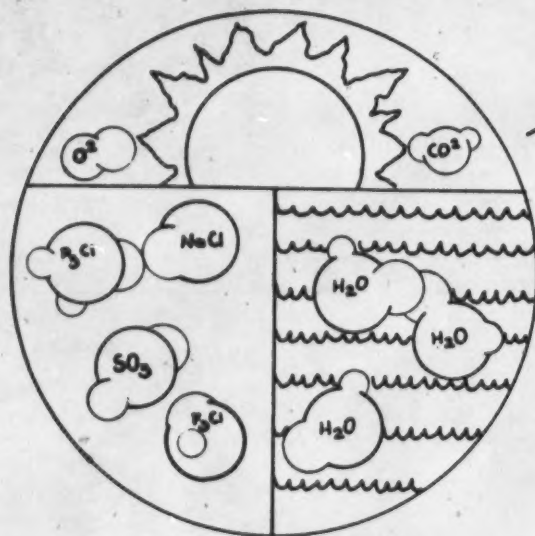
SPLASH EROSION: Is caused by raindrops hitting bare soil.

GROUND COVER: Grasses, plants, shrubs, or trees preventing the soil from being worn away by wind or water.

STRIP CROPPING: Planting rows of different crops to hold the soil together against erosion.

CONTOUR PLOWING: Plowing across a hill, instead of straight up and down to prevent erosion.

TERRACING: Plowing across a hill and making stairs out of the soil to prevent erosion.



Non Living Matter



Decomposers

ECOSYSTEM

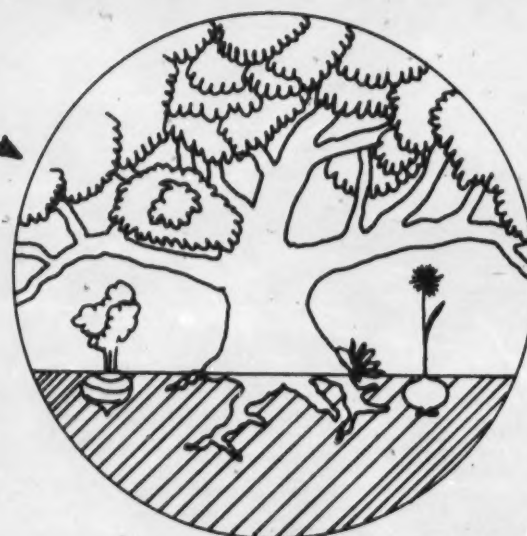
An ecosystem is the sum total of all living and non-living parts supporting a chain of life within a selected area. The interaction of the four following links is critical in the functioning of an ecosystem. Any change in one link is bound to affect the others. This web-like relationship is the essence of the ecology of an area.

1. Non-living matter - The sunlight, water, oxygen, CO_2 , soil with the organic compounds and mineral nutrients, used by plants for growth.

2. The Plants (Producers) - convert CO_2 and a water solution in a process called photosynthesis into organic compounds required both by themselves and other organisms in the ecosystem. Plants are our primary source of renewable wealth.

3. The Consumers - Higher organisms that feed on the Producers. Herbivores such as cows and sheep are primary consumers as are many insects. Carnivores, man and such animals as the coyote and lion feed upon herbivores and are the secondary Consumers. (Omnivores feed on both plants and animals.)

4. The Decomposers - Bacteria, fungi and insects close the system when they break down the dead Producers and Consumers and return their chemical compounds to the soil for re-use in plants.



Producers



Consumers